



Marksmanship Master Trainer Course



ACOG

Advanced Combat Optical
Gunsight



Marksmanship Master Trainer Course



Action:	Conduct an Introduction to Mid Range Marksmanship
Conditions:	In a classroom and field environment, given a M4-Series rifle, M4 Rifle magazine, Advance Combat Optical Gunsight (ACOG), and small arms maintenance equipment.
Standards:	Apply the fundamentals of Mid Range Marksmanship training with an M4 Rifle and ACOG IAW TC 3-22.9 Rifle Marksmanship M4 Series Weapons to engage targets at ranges from 100-600 meters.
Learning Domain - Level:	Cognitive - Applying
JPME I Learning Areas Supported:	None



Marksmanship Master Trainer Course



INTRODUCTION TO THE ACOG SCOPE



TA31F / M150



TA31RCO



Marksmanship Master Trainer Course



DESCRIPTION

- The ACOG scope is a lightweight, rugged, four power optical scope.
- Designed for the M4/M16A4, the ACOG provides an “auto ranging” reticle for ranges up to 800 meters.
- Through the use of both fiber optic and tritium the ACOG is dual illuminated during both day and night without the use of batteries.



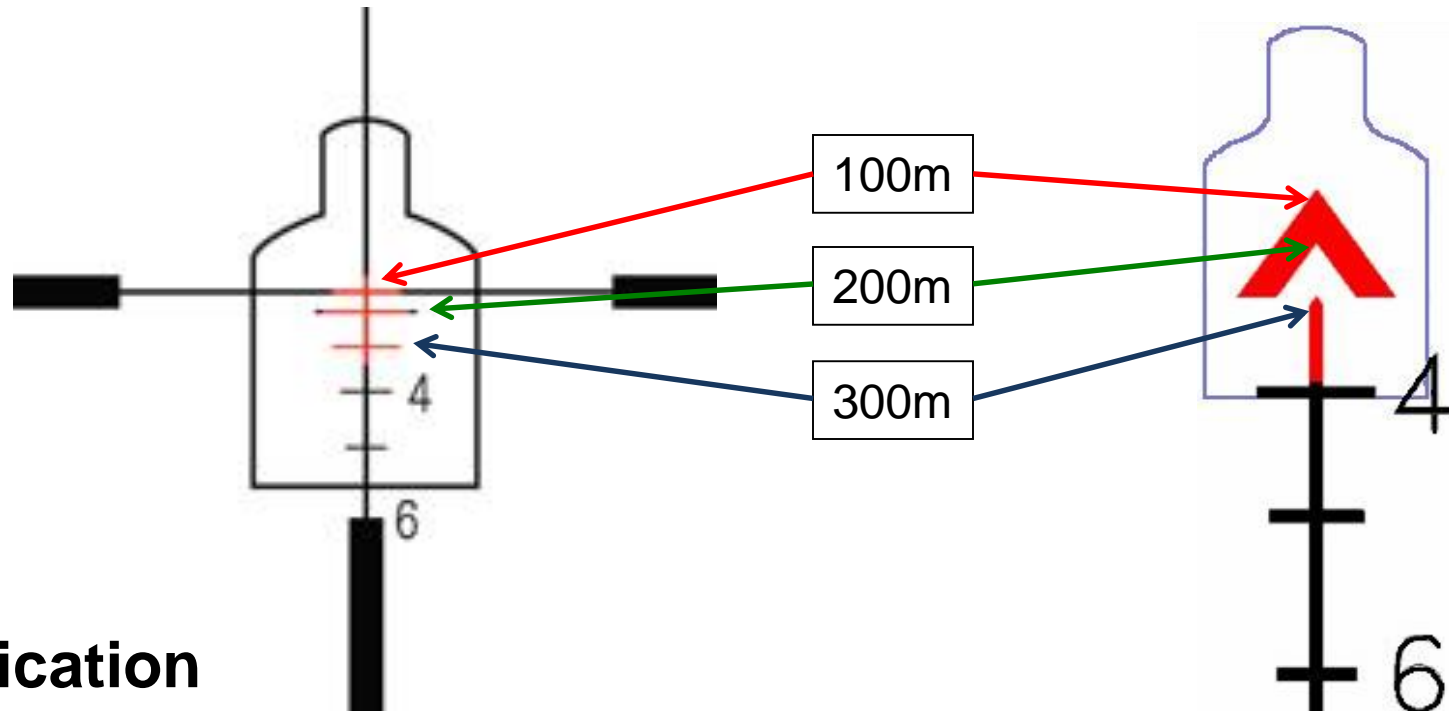
Marksmanship Master Trainer Course



CHARACTERISTICS

- **4x magnification.**
- **Weight = 15.3 ounces w/M1913 rail adaptor.**
- **32mm objective lens.**
- **Waterproof to depth of 66 feet w/adjuster caps on.**
- **Eye relief 1.5 inches.**
- **Field of view at 100 yds. = 36.8 feet**

ACOG



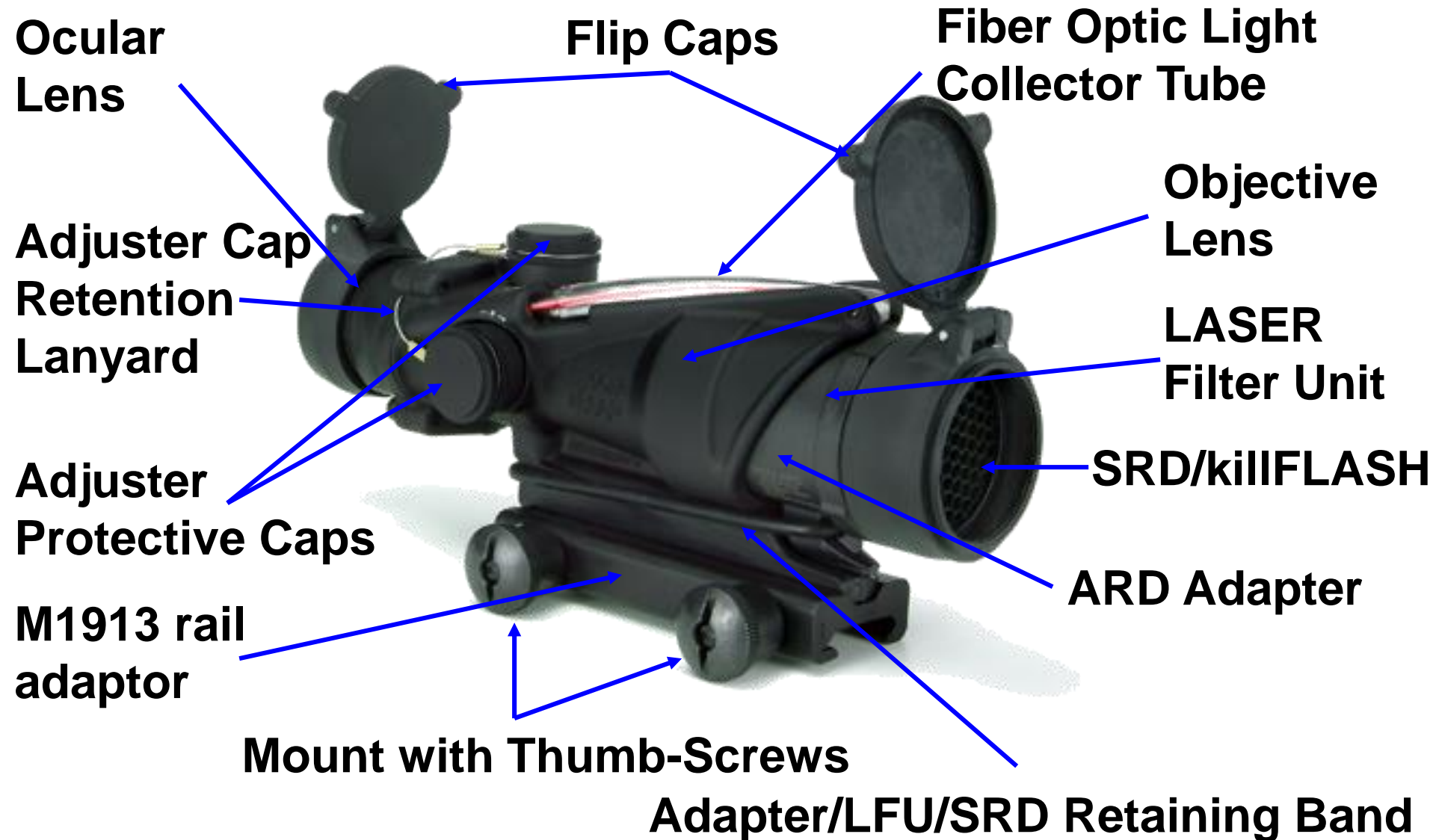
4x magnification



**Use 100m line for 100m Z
Use 300m line for 25m Z
(POI = approx. 1 cm LOW)**

**1 click = 1/3 MOA (internal knob)
1 click = 1/2 MOA (external knob)**

CONTROLS & INDICATORS



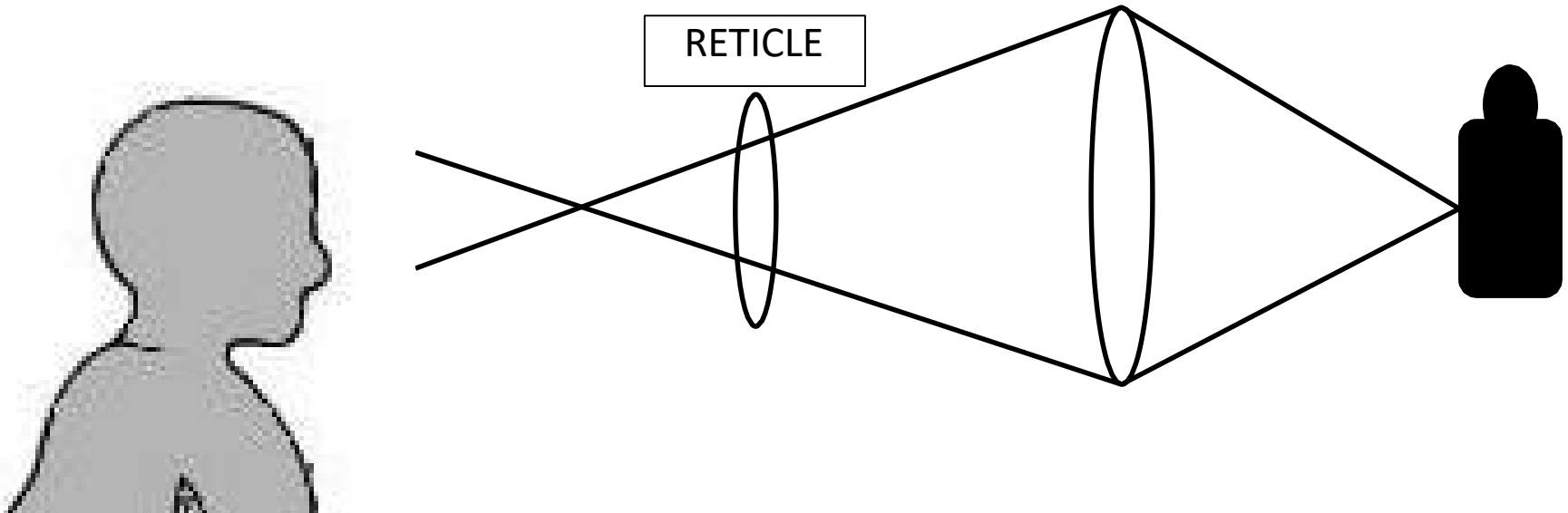


Marksmanship Master Trainer Course



Parallax

➤ Parallax in a rifle scope is the apparent movement, or displacement of objects when viewed from different perspectives



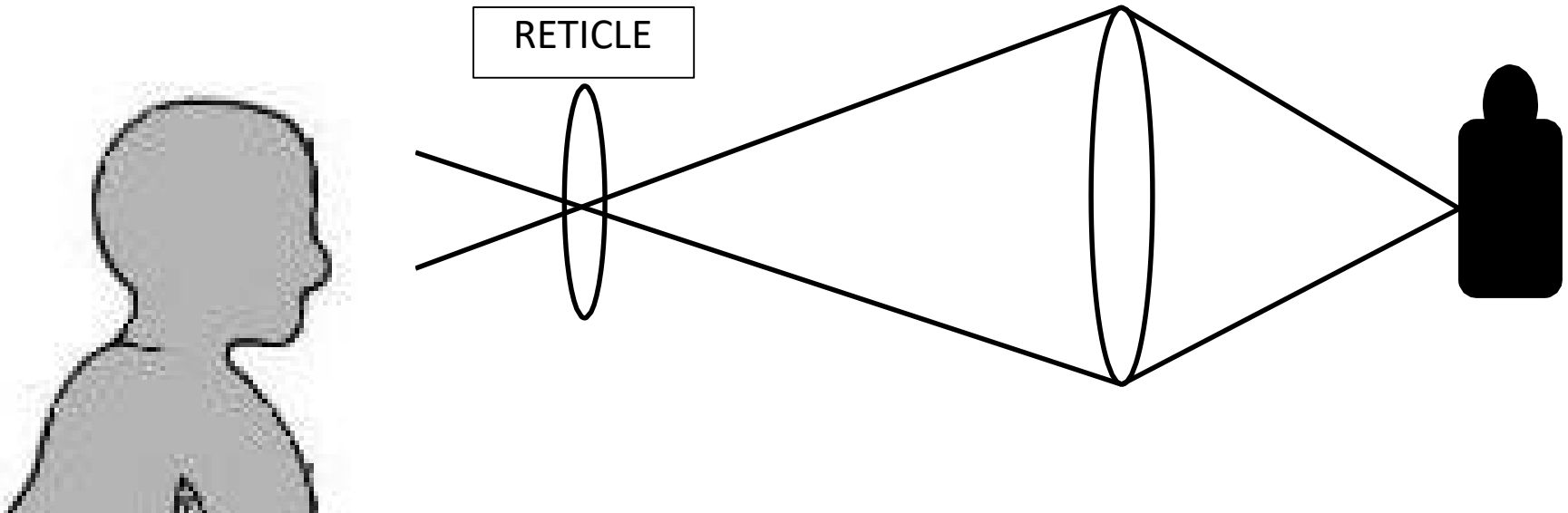


Marksmanship Master Trainer Course



Parallax

- When parallax is adjusted properly the reticle and the target should not move independently





Marksmanship Master Trainer Course



Eye Relief

- Your eye should be positioned to see the full field of view of the eyepiece
- Scopes/optics should be mounted to provide the best eye relief in all shooting positions, and magnifications

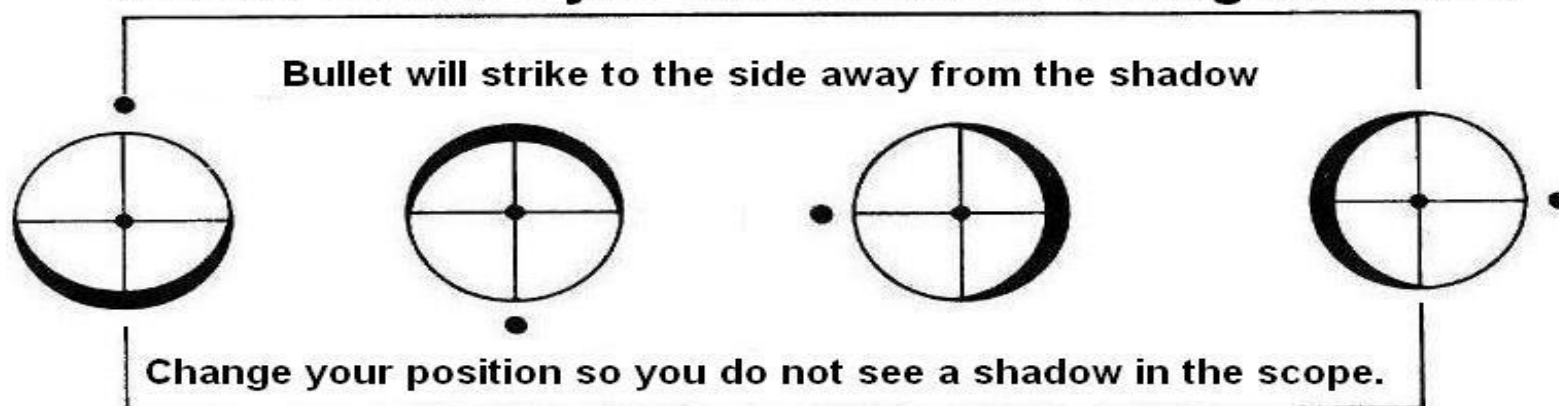


Marksmanship Master Trainer Course



Eye Relief

**Proper Use of a Scope,
What it means if you see a shadow through the lens**



Shadow Effects, use of a Scope, Marine Sniper Manual, figure 3-4. During aiming, make sure that there are no shadows in the field of view of your scope. The field of view must be completely clear. If the eye is located without proper eye relief, a circular shadow will be seen in the field of view, reducing the field size and hindering observation. If crecent- shaped shadows are present, the bullets will strike to the side away from the shadow. If you notice shadows on the edges of the field of view during aiming, you must find a position for your head in which your eye will see clearly the entire field of view of the telescope.



Marksmanship Master Trainer Course



BZO PROCEDURES

- ACOGs come factory preset for most M16A4 weapons, as such, only slight adjustments should be made.
- **DO NOT OVER ADJUST.** If you feel tension increasing as you adjust, **STOP.** Turn the ACOG into the armory. Continued adjustment past the felt resistance will damage the scope.
- The ACOG is only waterproof with the scope caps installed and not damaged. Remove and replace only when adjusting the scope, and only hand tighten.



Marksmanship Master Trainer Course



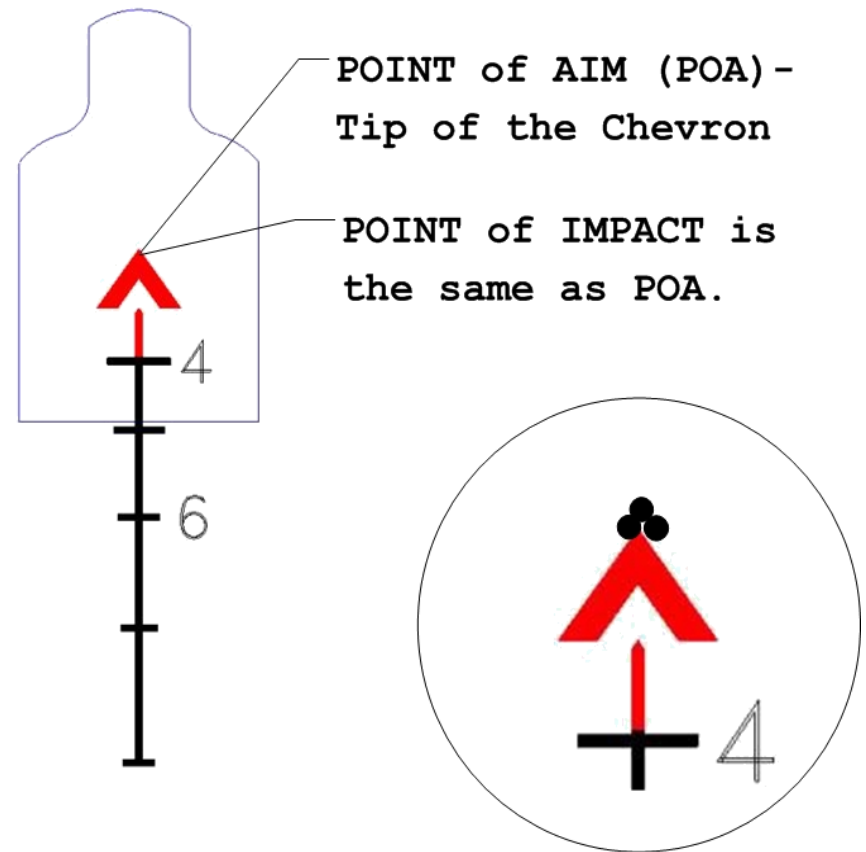
TWO METHODS OF ZEROING

- 100 meter zero
- 25 meter combat BZO
- Zero shooting from a supported prone position using your ruck sack as a rest

Technical:

True zero (100m)

- Establish a 100 meter target.
- Use a good prone supported firing position if possible.
- Fire 5 single rounds using the tip of the chevron as the POA/POI. (retighten then fire 5 more rounds before determining initial adjustments)
- Make adjustments for a point of aim point of impact.
- (Internal Knob) 3 clicks equals 1 MOA/1 inch @ 100 meters for both windage and elevation.
- (External Knob) 2 clicks equals 1 MOA/ 1 inch @ 100 meters for both windage and elevation.
- Important: Obtain an accurate zero





100 meter BZO
POA/POI

Moving the adjuster in the direction of the arrow moves the strike of the round in that direction. **Internal Knob 3 clicks = 1"** For both elevation and windage

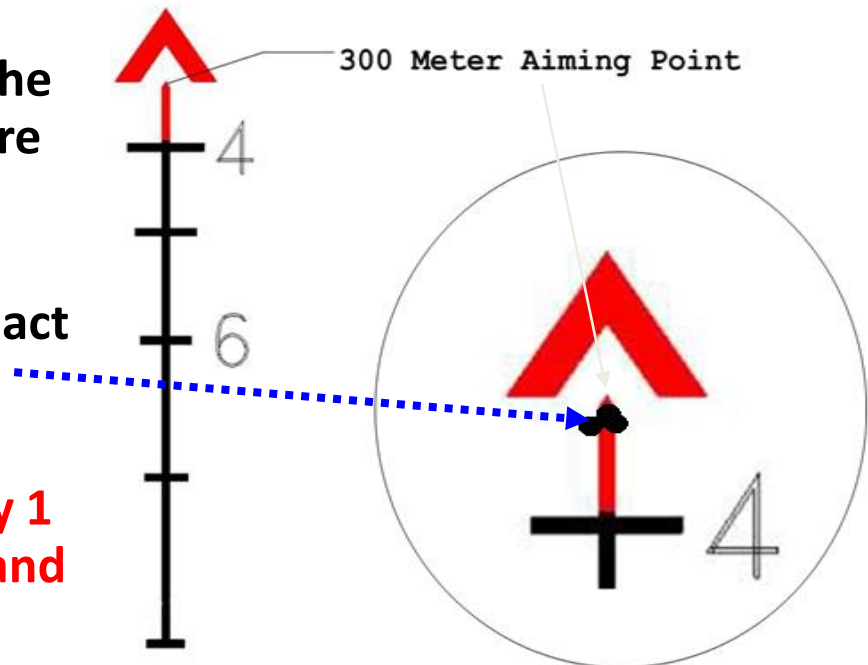
(UP/ Clockwise = move impact up)

(R/ Clockwise = move impact right)

Technical:

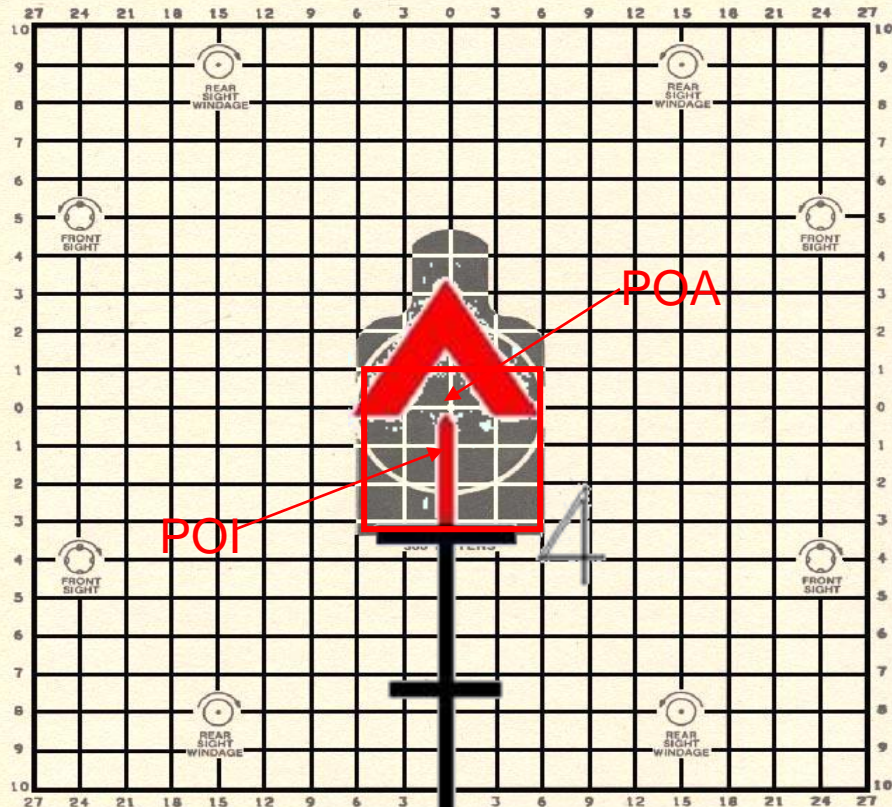
BZO

- Establish a 25 meter target.
- Use a good prone supported firing position if possible.
- Fire 5 single rounds using the tip of the 300m Post. (retighten then fire 5 more rounds before determining initial adjustment)
- Make adjustments for a point of impact just below point of aim.
- (Internal Knob)12 “clicks”/ (External Knob)8 “clicks” equals approximately 1 inch @ 25 meters for both windage and elevation.
- Important: Obtain an accurate zero



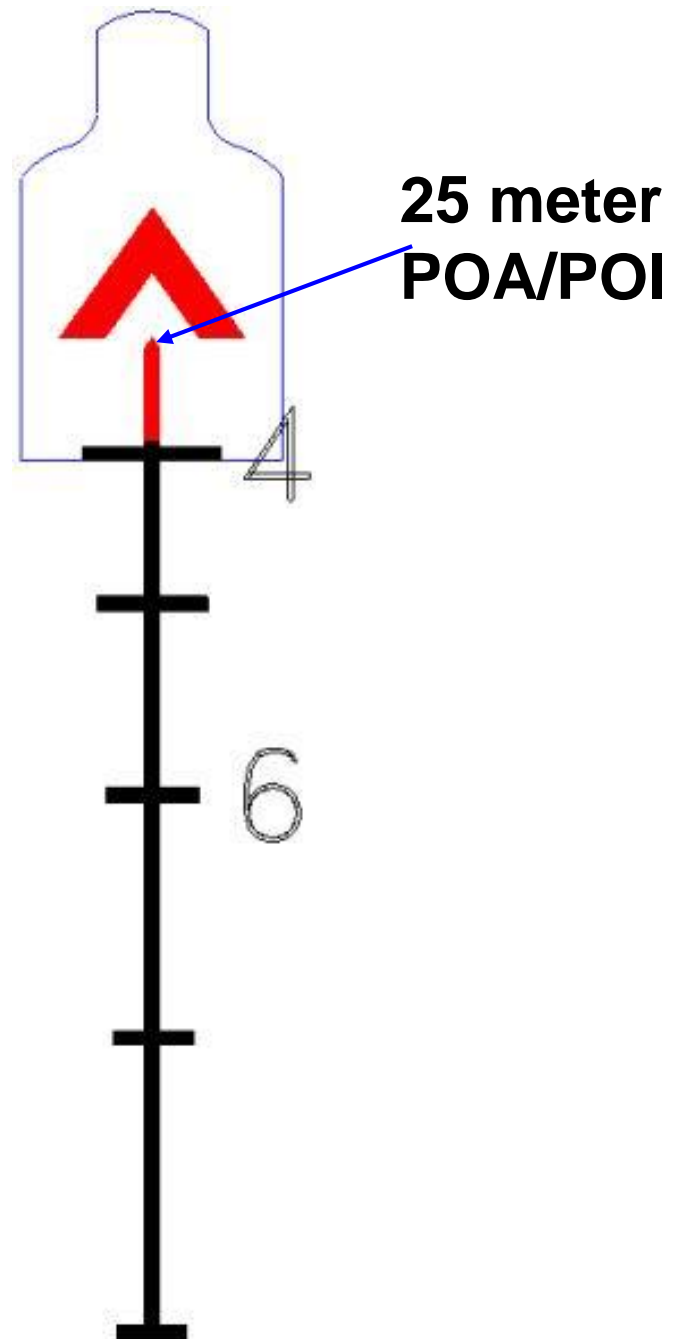
Important: If you BZO the ACOG, confirm true zero as soon as possible at 100m. Make adjustments as necessary.

25 METERS ZEROING TARGET M16A2

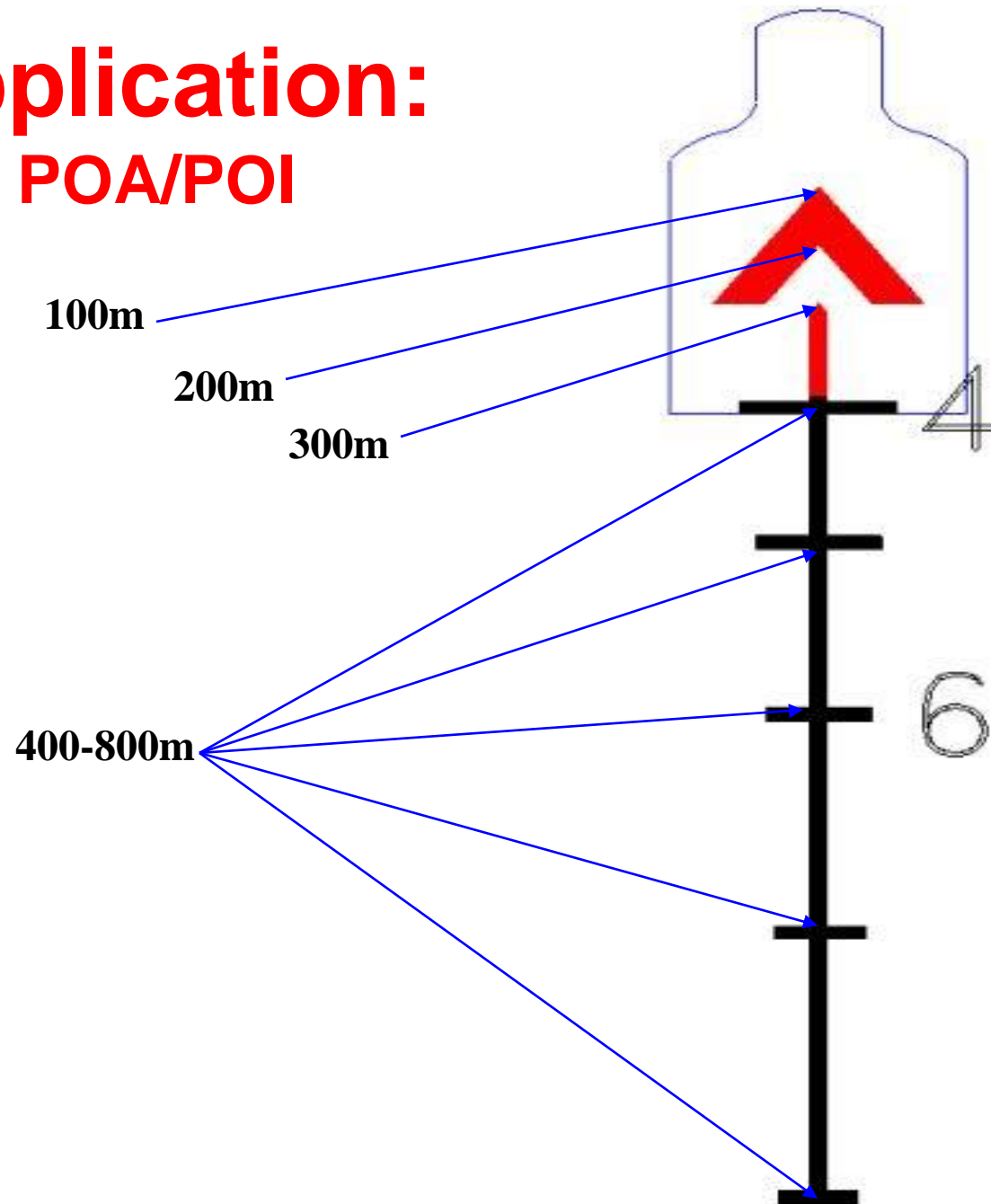


ZERO TARGET DATA

- 1- ROTATE REAR SIGHT ELEVATION KNOB TO THE 8/3 SETTING, THEN UP (RIGHT) ONE CLICK PAST THE 300 MARK, FOR ZEROING AT 25 METERS.
- 2- AIM AT TARGET CENTER, ADJUST SIGHTS TO MOVE SHOT GROUP CENTER AS CLOSE AS POSSIBLE TO THE WHITE DOT IN CENTER OF THE TARGET.
- 3- AFTER COMPLETION OF THE 25 METER ZERO, ROTATE THE REAR SIGHT ELEVATION KNOB BACK ONE CLICK TO THE 300/800 METER MARK, THE WEAPON WILL BE ZEROED FOR 300 METERS.



Application: POA/POI





Marksmanship Master Trainer Course



IMPORTANCE OF A PERFECT ZERO

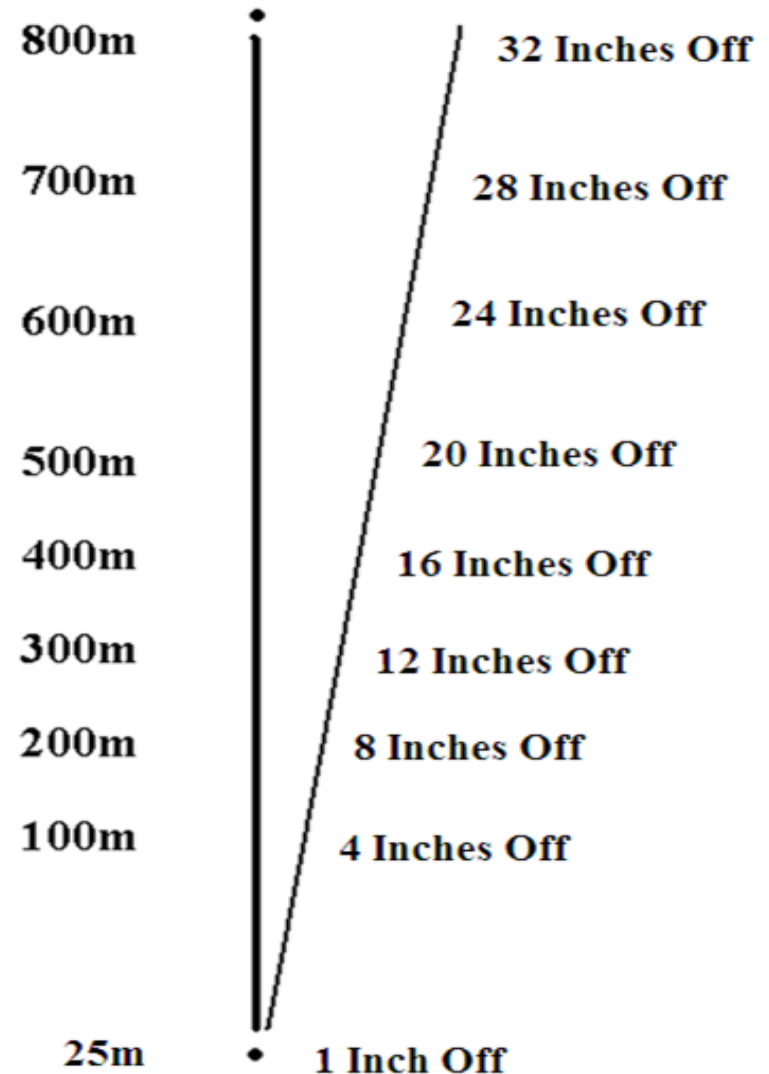
- Although the TA31F is NOT a dedicated sniper scope, the importance of obtaining a precise zero must be discussed. **If the shooter accepts a 25 meter zero that is off by only 1 inch, the round will impact 32 inches off target at 800 meters.** Therefore it is critical to ensure the most precise zero possible in order to use the TA31F to it's full potential.
- The next slide illustrates this importance.

Importance of a perfect zero

Failure to obtain an accurate zero

Does not take into account:

- Human error
- Environmental conditions
- Weapon/ammunition

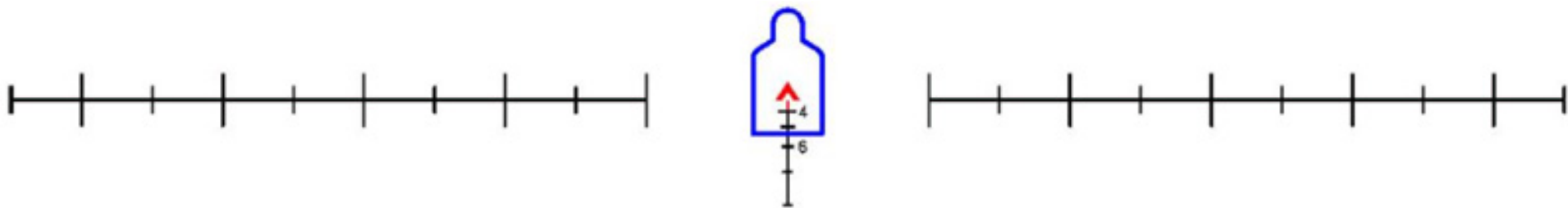
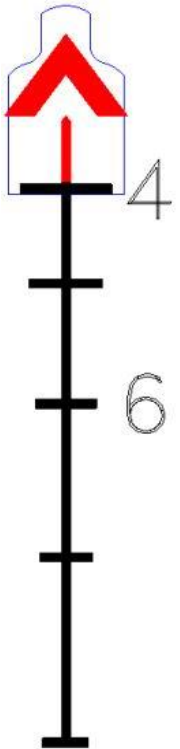


ACOG USE

- Due to the use of tritium and fiber optic light devices the scope will allow the use of the Bindon Aiming Concept (BAC) of shooting with both eyes open.
- The ACOG can be used to “scan” an area.
- When a target is acquired, use the ranging reticle (if time allows) to get an accurate range to the target.
- Use the range aiming point on the bullet drop compensator, and engage the target.
- The scope can also be shot with holding only one eye open. (Preferred method for farther targets.)

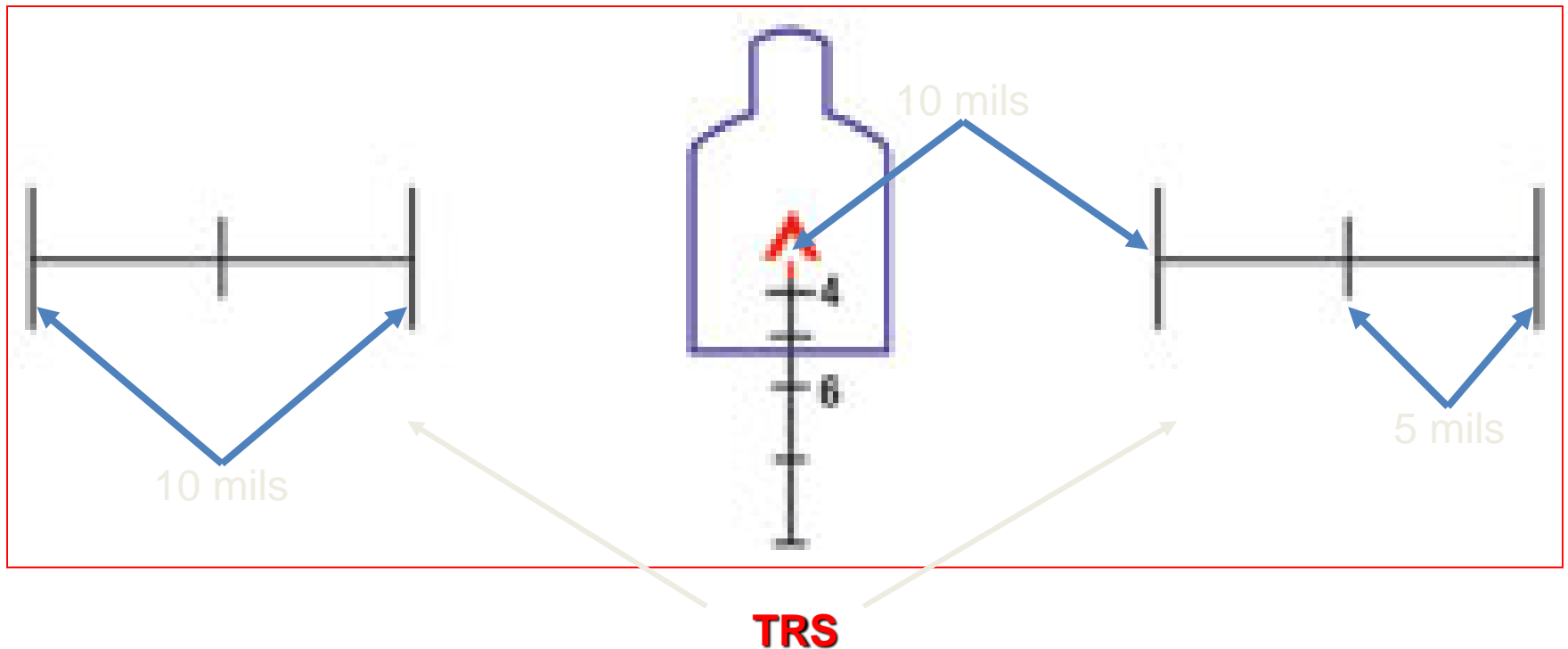
RANGING FEATURE

- The horizontal stadia lines represent 19 inches at the respective ranges. (between 400m & 800m they should fit the average width of the frontal view of a man shoulders).
- Range your target using the width of the stadia lines. **The outside legs of the Chevron equals 19 inches at 300m.**



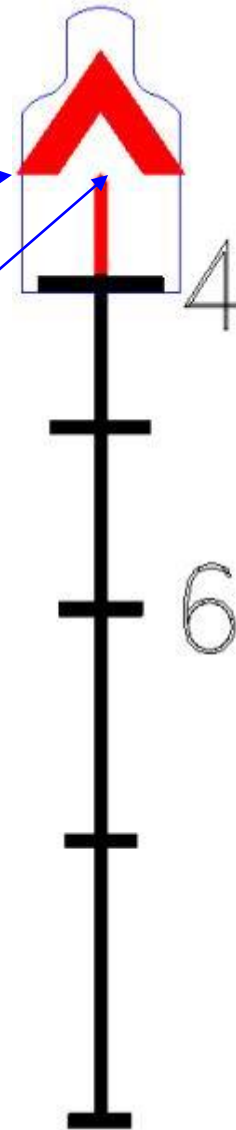
TARGET REFERENCE SYSTEM

- The TA31RCOM150 reticle includes a horizontal graduated in 5 mil increments.
- The distance from the center post to the first mil-bar on either side is 10 mils.
- The horizontal mil-scale is primarily used for communicating target positions.

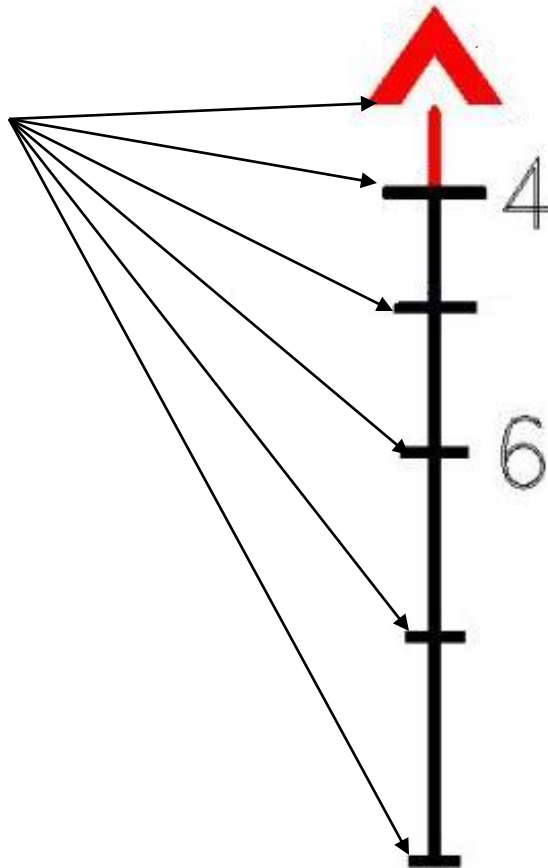


**Outside of chevron
legs target ranged
at 300 meters**

**Target engaged at
center mass using the
300m post if time allows**



**Each stadia is 19"
at the listed range**





Marksmanship Master Trainer Course

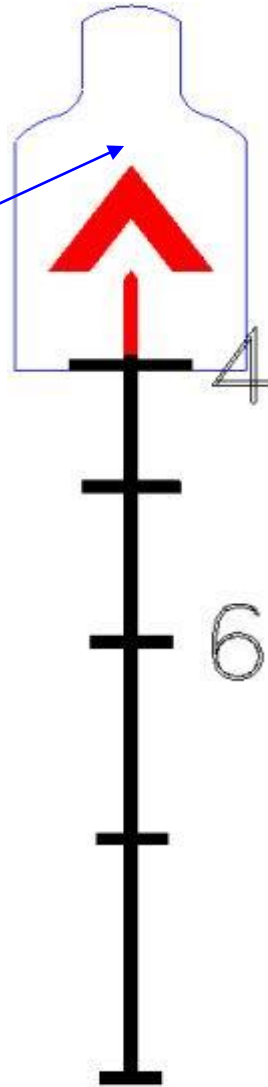


TARGET ENGAGEMENT 300 METERS OR LESS

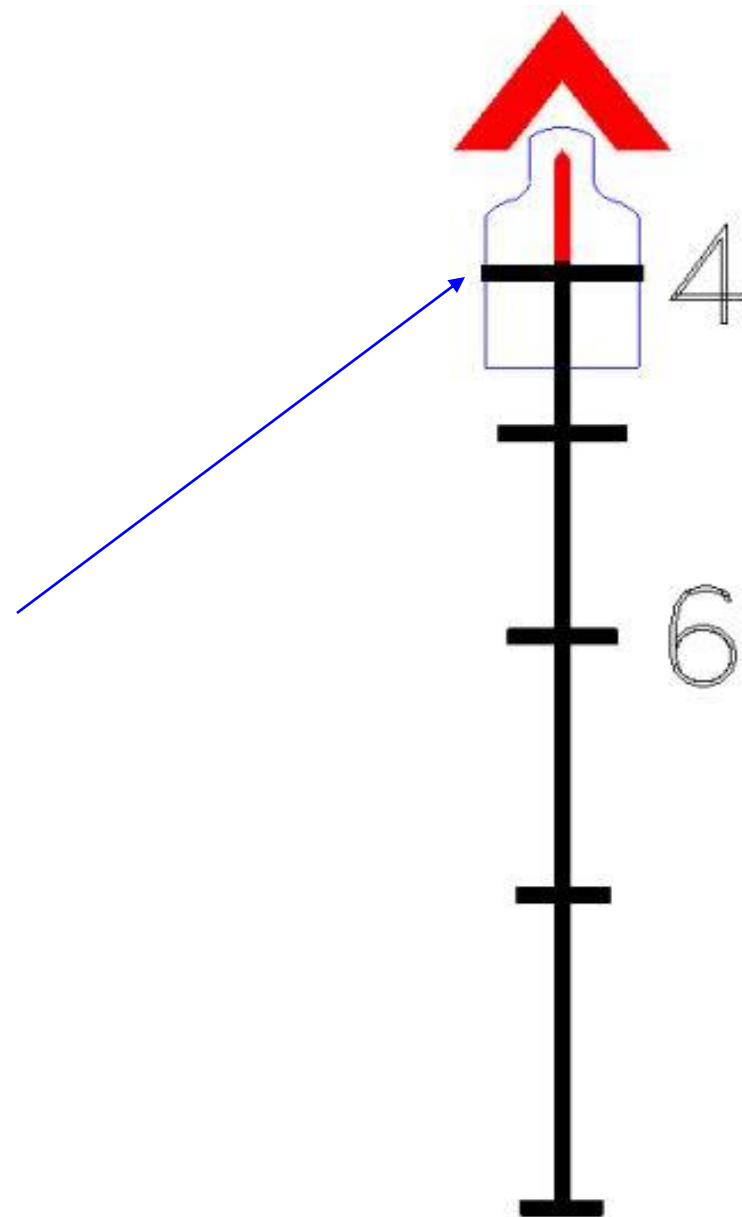
- For target engagements requiring speed inside 300 meters place the tip of the chevron on a high chest hold.

300 meter and below rapid target engagement

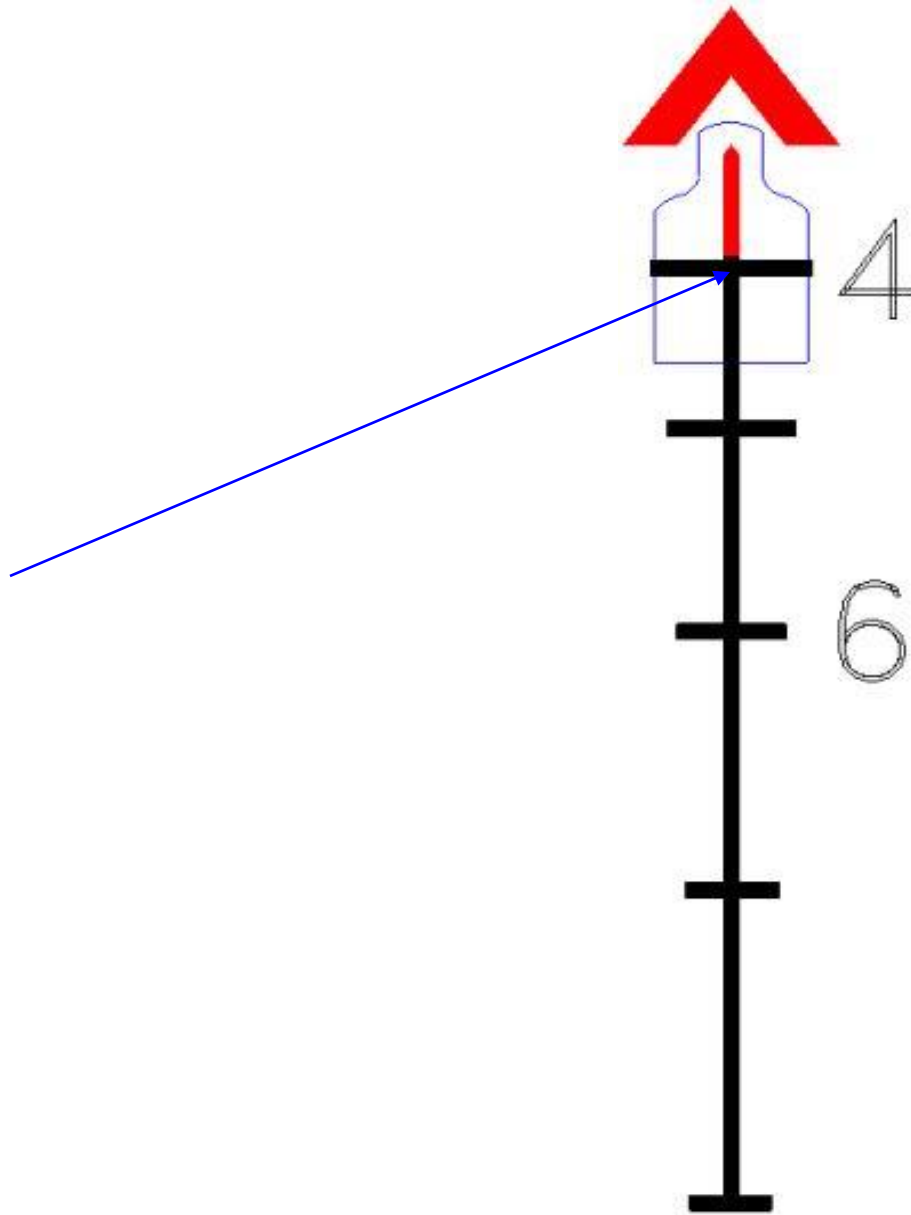
High chest hold



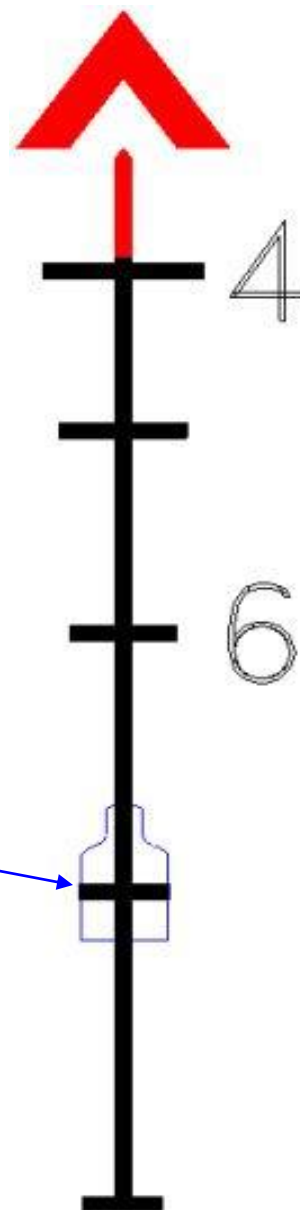
Target ranged at 400m



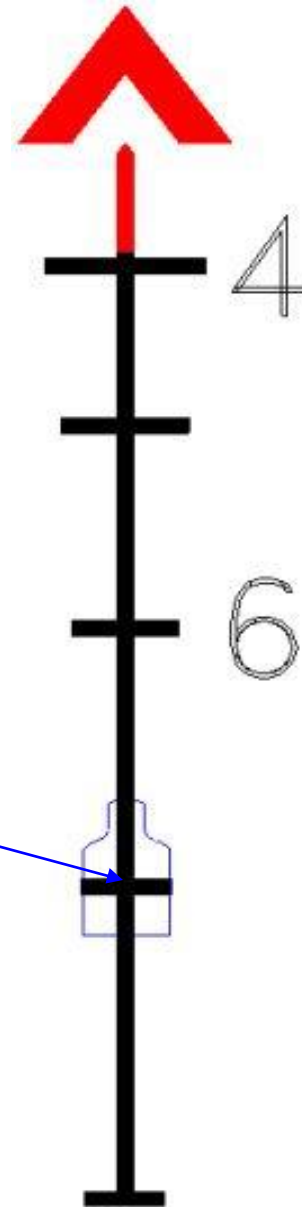
**Target engaged at
center mass using
the 400m stadia**



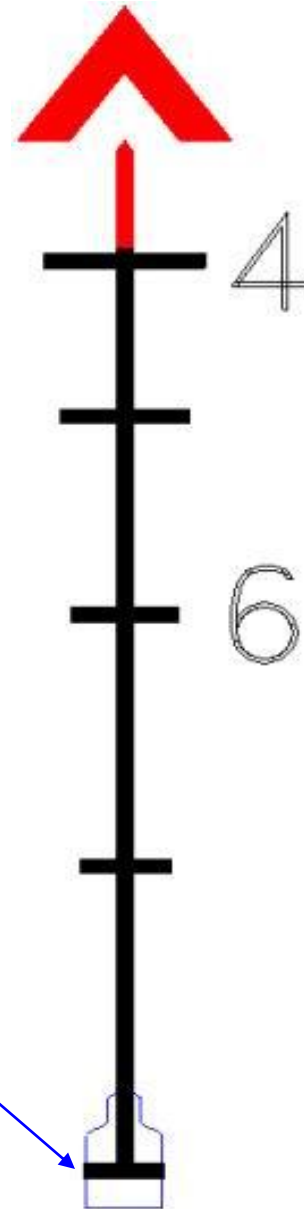
**Target ranged
at 700m**



**Target engaged at
center mass using the
700m stadia**



**What range is
this target?**





Marksmanship Master Trainer Course



**Questions on the Ranging
Reticle features?**



Marksmanship Master Trainer Course



FIELD CRAFT

- Improvised adjustable reticle illumination.





Marksmanship Master Trainer Course



FIELD CRAFT

Improvised adjustable reticle illumination

Transitional light periods





Marksmanship Master Trainer Course



TRITIUM SAFETY

- The ACOG scope is designed to handle field use, however severe impacts can damage the scope.
- Inspect the scope prior to use and after any severe impacts for tritium lamp glow.



Marksmanship Master Trainer Course



TRITIUM SAFETY CONT'D

- If the tritium lamp does not glow, or if you suspect it may have broken due to damage, treat the scope in the following manner:
 - Notify your chain of command.
 - Handle only with rubber gloves.
 - Turn in wrapped in two plastic bags.
 - Wash your hands.



Marksmanship Master Trainer Course



Identify inspection of tritium lamp requirements

- Recommend checking every 6 months, or immediately after dropping the ACOG onto a hard surface.
- Enter a dark room and look through the scope the reticle should be illuminated.
- Inspection is easier if the scope is already installed on a weapon. This ensures that you are focused on the reticle pattern.



Marksmanship Master Trainer Course



Questions?